TC-K333ESL/K970ES

SERVICE MANUAL

AEP Model
TC-K970ES
E Model
TC-K333ESL

* Dolby noise reduction and HX Pro headroom extension manufactured under license from Dolby Laboratories Licensing Corporation. HX Pro originated by Bang & Olufsen.

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Model Name Using Similar Mechanism	TC-K333ESG
Tape Transport Mechanism Type	TCM-200D4

SPECIFICATIONS

Recording system 4-track 2-channel stereo
Fast winding time Approx. 90 sec. (with Sony C-60 cassette)
Bias AC bias
Heads Erasing head × 1 (S&F head)
Recording head × 1 (LA head)
Playback head × 1 (LA head)
Motors Capstan motor × 1
(direct-drive linear torque BSL motor)
Reel motor × 1 (DC motor)
DC motor × 1

Signal-to-noise ratio (at peak level)

Dolby NR switch / Cassette	OFF	B-Type ON	C-Type ON
Type IV (Sony METAL-S)	61 dB	70 dB	76 dB
Type II (Sony UX-S)	59 dB	68 dB	74 dB
Type I (Sony HF-S)	57 dB	66 dB	72 dB

Total harmonic distortion 1.0% (with Sony METAL-S cassettes)
Frequency response (DOLBY NR OFF)

Type IV cassette (Sony METAL-S)	15 - 22,000 Hz (±3 dB,IEC) 15 - 16,000 Hz [±3 dB OVU(-4dB)recording]
Type II cassette (Sony UX-S)	15 - 20,000 Hz (±3 dB,IEC)
Type I cassette (Sony HF-S)	15 - 18,000 Hz (±3 dB,IEC)

Wow and flutter ±0.04% W.Peak (IEC)
0.024% WRMS (NAB)
±0.065% W.Peak (DIN)

Inputs

Line inputs (phono jacks)	Sensitivity	77.5 mV
	Input impedance	47 k ohms
CD DIRECT INPUT	Input impedance	47 k ohms

Outputs

Line outputs (phono jacks)	Rated output level	0,44 V at a load impedance of 47 k ohms
	Load impedance	Over 10 k ohms
Phones (stereo phone jack)	Output level	0 - 2,5 mW at a load impedance of 32 ohms

General
Power requirements 120-220-240V AC, 50/60Hz (AEP, Germany)
220-230V AC, 50/60Hz (E)
Power consumption 31 W
Dimensions Approx. 470 × 140 × 380 mm (w/h/d)
(18⅝ × 5⅝ × 15 inches)
including projecting parts and controls
Weight Approx. 12.0 kg (17 lbs 7 oz)
Model for other countries: Approx. 11.2 kg
Supplied accessory Audio connecting cord (2)
Screws(8)
Wireless remoto control unit*
Sony R6 (Size-AA) batteries (2)*

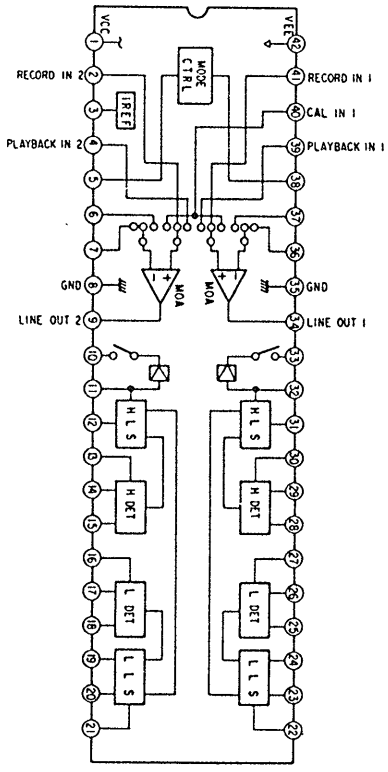
*Not supplied with model for AEP countrries
Design and specifications subject to change without notice.

使用時は添付資料も参照のこと
Refer to the additional documents.

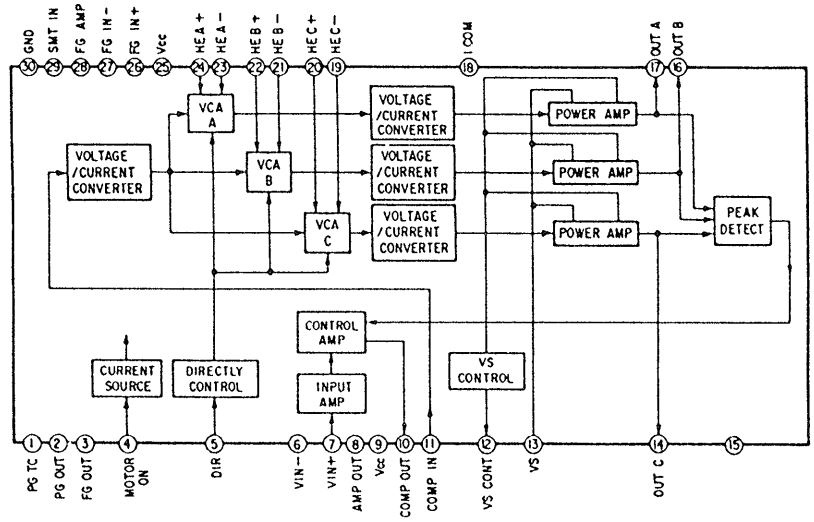
STEREO CASSETTE DECK
SONY®

4-3. IC BLOCK DIAGRAMS

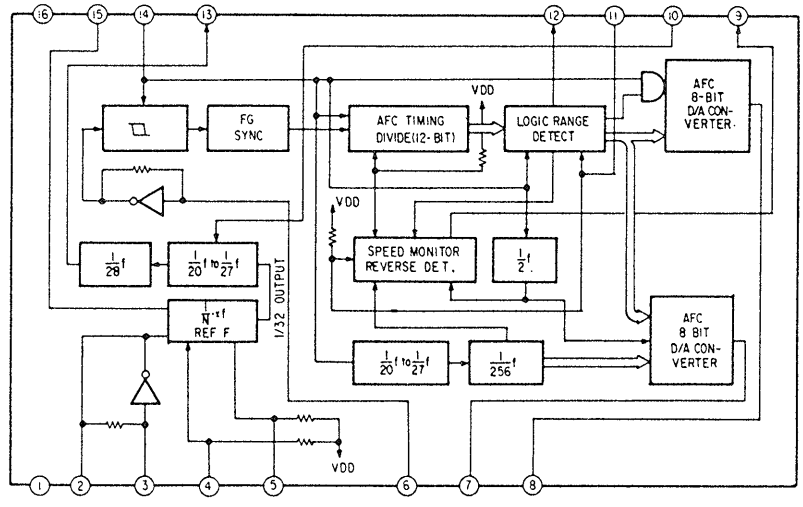
IC502, 505 CX20188



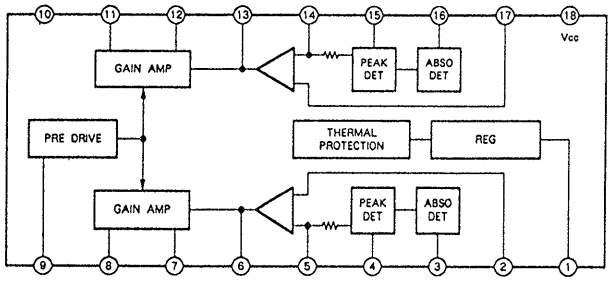
IC902 CX20174



IC952 TC-9142P

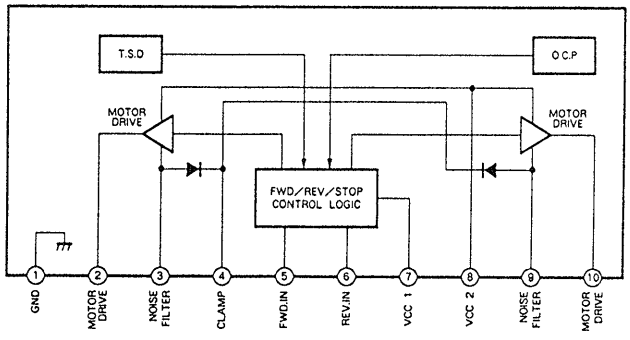


IC508 μPC1297CA



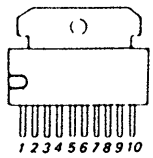
IC802 BA6219B

IC803 LB1641

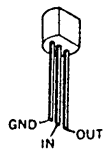


4-4. SEMICONDUCTOR LEAD LAYOUTS

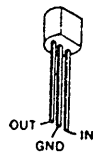
BA6219B



M5F7807
RC79L12A



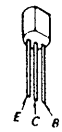
M5F7907
RC78L12A



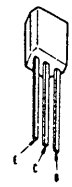
2SK246-GR2

2SK147

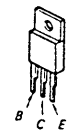
2SB716
2SC945-P
2SC1815-GR
2SD666A



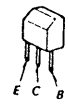
DTA114ES
DTA144ES
DTC114ES
DTC124ES
DTC143ES
DTC144ES
2SB1370-EF
2SC2603-EF
2SC2682-QPE
2SC3623A-LK
2SD2061-EF



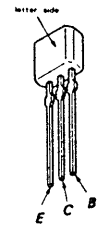
2SA985A
2SC2275A



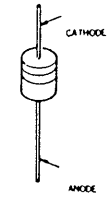
2SB734-34



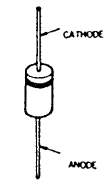
2SA1175-HFE
2SD1020-HFE



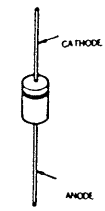
RD5.1JS-B1
HZS6C1L
HZS6C3L
UZL-6M2
UZL-24L
1SS202-1



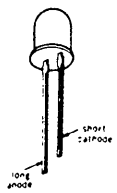
HZ6B2L
HZ12B2L
10E2N



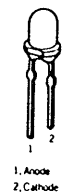
30DF2



SEL4414E-C
SEL4814A-CD



SEL4214S



4-5. BLOCK DIAGRAM

4-6. PRINTED WIRING BOARDS – AUDIO SECTION –

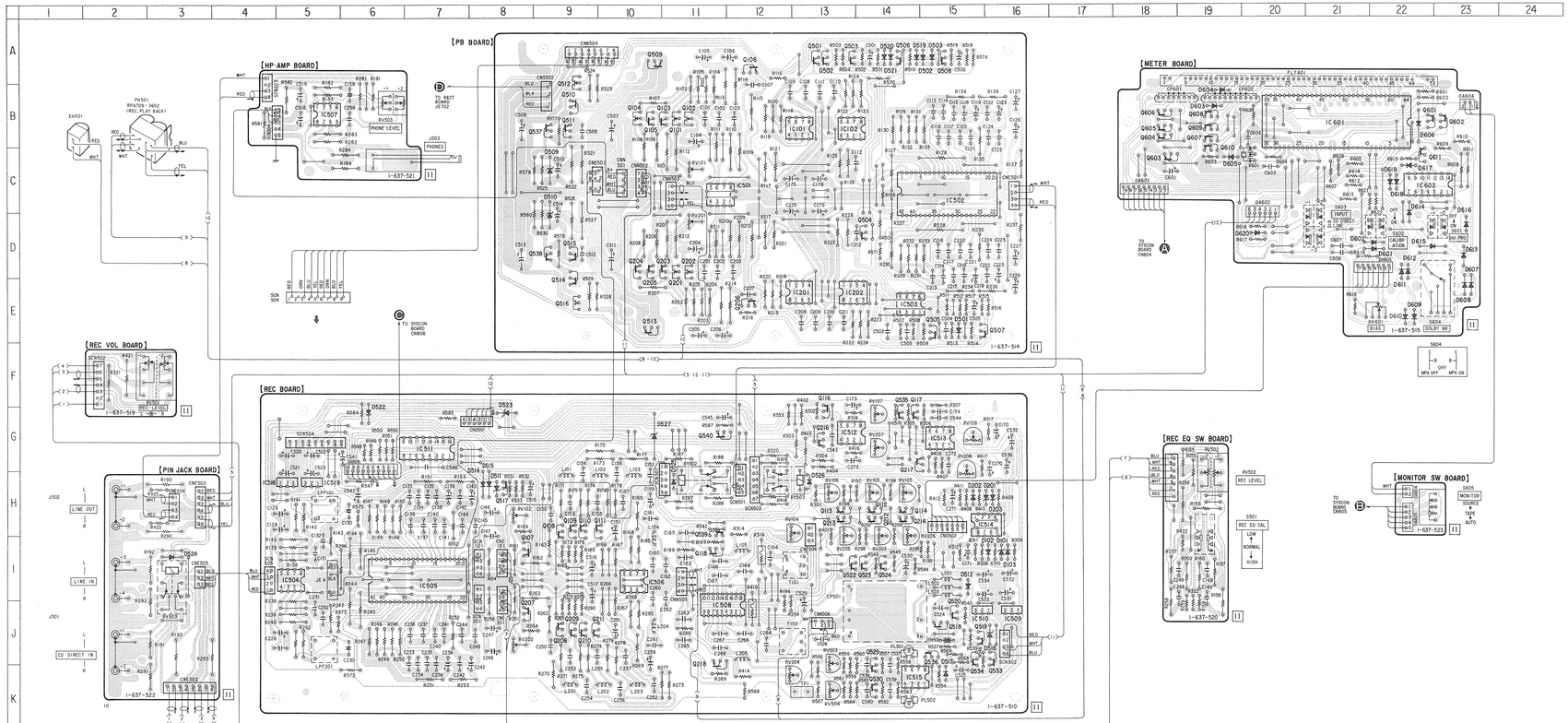
• Semiconductor Location

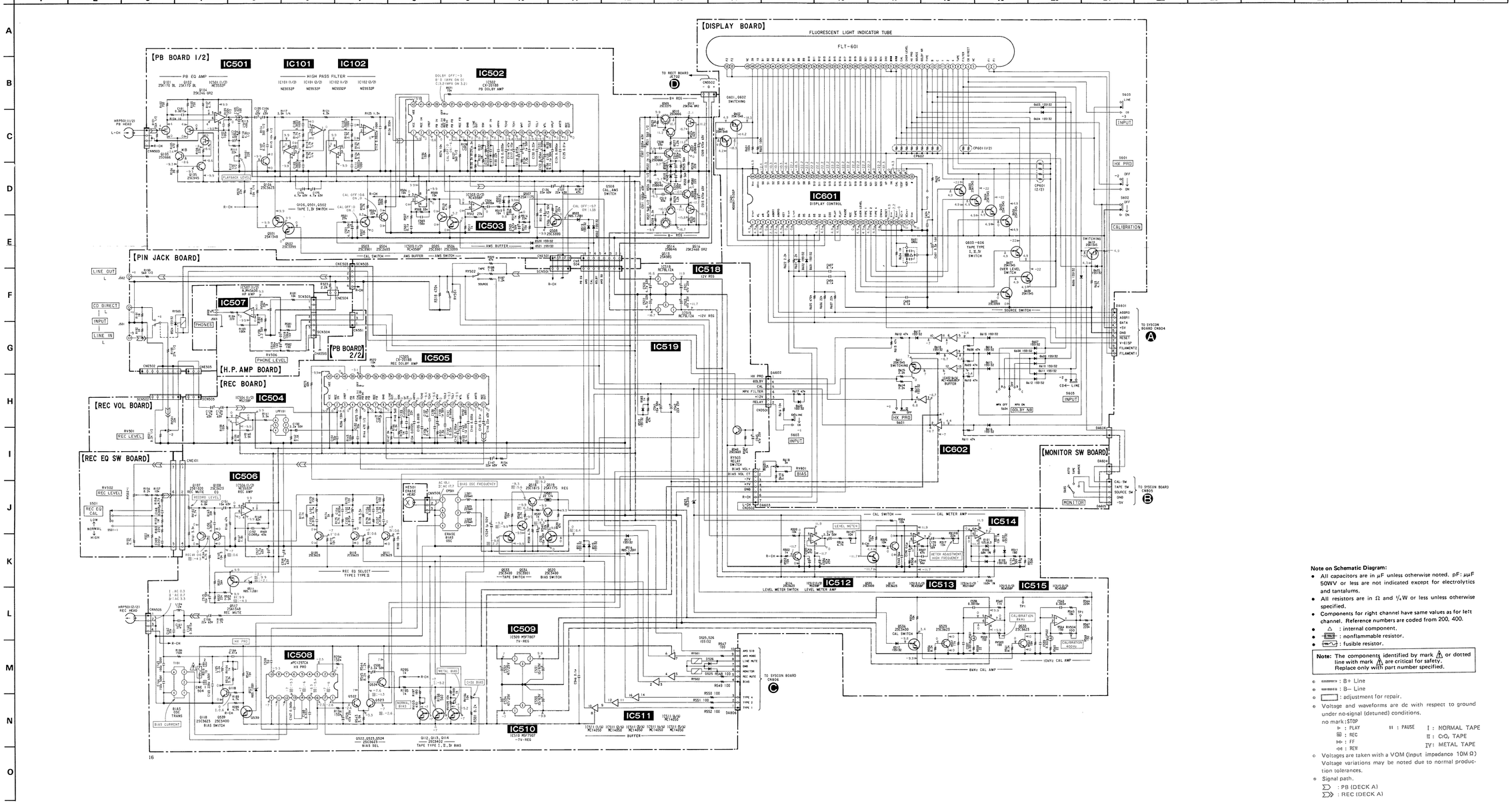
Ref. No.	Location	Ref. No.	Location
D101	I-16	Q105	B-10
D102	I-16	Q106	A-12
D103	I-16	Q107	I-8
D201	H-15	Q108	H-9
D202	H-15	Q109	H-9
D203	H-16	Q110	H-9
D501	E-15	Q111	H-9
D502	A-15	Q112	H-14
D503	A-15	Q113	H-13
D509	C-9	Q114	H-14
D510	C-9	Q116	G-13
D511	H-8	Q117	G-14
D512	I-15	Q118	I-11
D514	H-8	Q201	D-11
D515	H-8	Q202	D-11
D516	J-16	Q203	D-10
D517	K-15	Q204	D-10
D519	A-14	Q205	D-10
D520	A-14	Q206	E-12
D521	A-14	Q207	J-8
D522	G-6	Q208	J-9
D523	G-8	Q209	J-9
D524	I-3	Q210	J-9
D525	H-11	Q211	J-9
D526	H-13	Q212	H-14
D527	G-10	Q213	H-13
D601	D-22	Q214	H-14
D602	D-22	Q216	G-13
D603	B-19	Q217	G-14
D604	B-19	Q218	J-11
D605	C-19	Q501	A-13
D606	B-22	Q502	A-13
D607	E-23	Q503	A-13
D608	E-23	Q504	D-14
D609	E-22	Q505	E-15
D610	E-22	Q506	A-14
D611	D-22	Q507	E-15
D612	D-22	Q508	A-15
D613	D-23	Q509	A-10
D614	C-22	Q510	B-9
D615	D-22	Q511	B-9
D616	D-23	Q512	A-9
D617	C-22	Q513	E-10
D618	C-22	Q514	D-9
D619	C-22	Q515	D-9
D620	D-20	Q516	E-9
		Q517	H-8
IC101	B-13	Q518	J-15
IC102	B-13	Q519	J-15
IC201	E-13	Q520	I-15
IC202	E-13	Q522	I-13
IC501	C-11	Q523	I-14
IC502	C-15	Q524	I-14
IC503	E-14	Q529	J-14
IC504	I-5	Q530	K-14
IC505	I-7	Q533	J-16
IC506	I-10	Q534	J-15
IC507	B-5	Q535	G-14
IC508	J-11	Q536	J-15
IC509	J-16	Q537	B-9
IC510	J-15	Q538	D-9
IC511	G-7	Q539	H-11
IC512	G-13	Q540	G-11
IC513	G-15	Q601	B-22
IC514	H-15	Q602	B-23
IC515	K-14	Q603	B-18
IC518	H-5	Q604	B-18
IC519	H-5	Q605	B-18
IC601	B-21	Q606	B-18
IC602	C-22	Q607	B-19
		Q608	B-19
Q101	B-11	Q609	B-19
Q102	B-11	Q610	B-19
Q103	B-10	Q611	B-22
Q104	B-10		

Note on Mounting Diagram:

● ○——— : parts extracted from the component side.

● ■ : parts mounted on the conductor side.



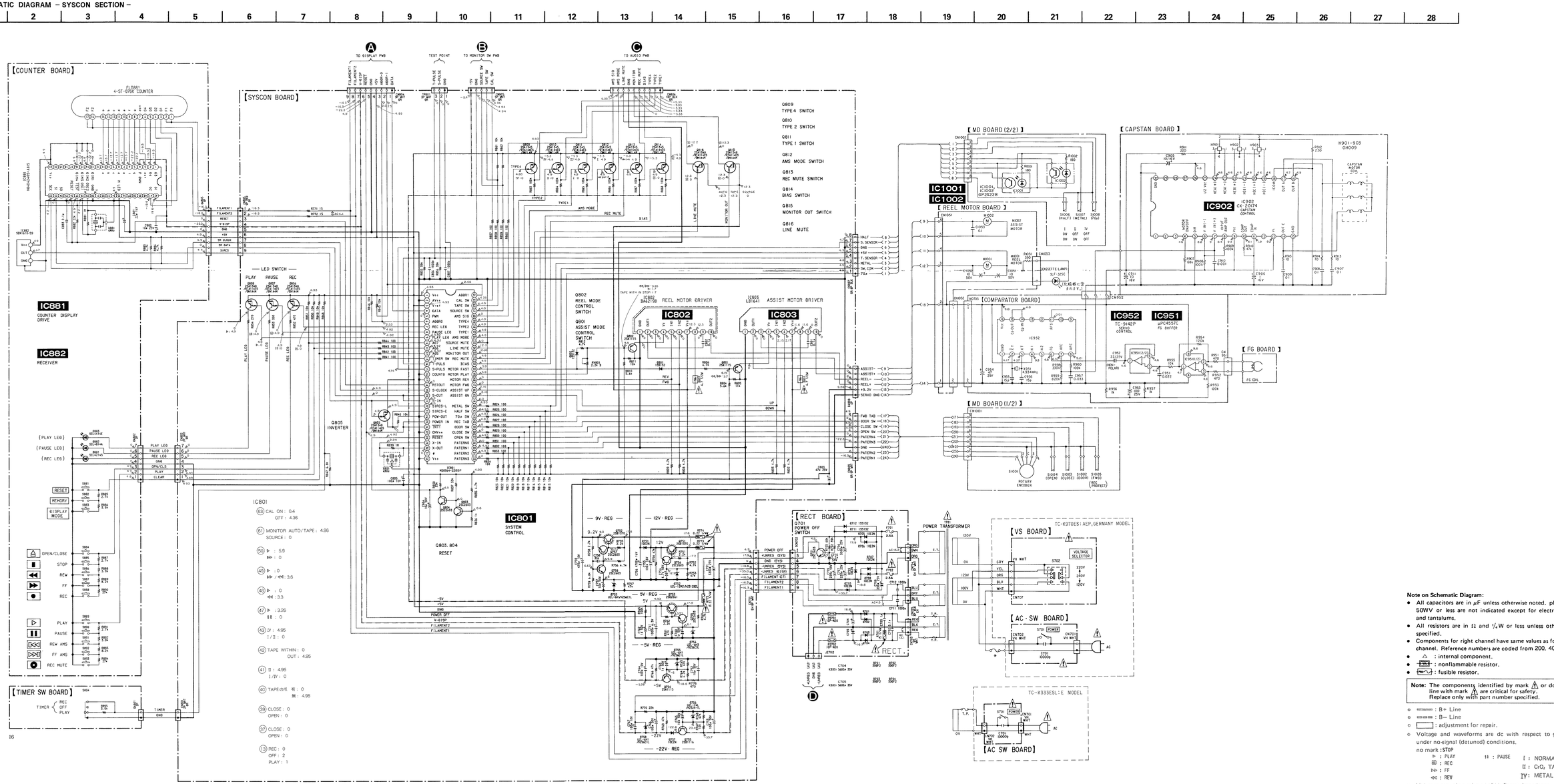


Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200, 400.
- △ : internal component.
- : nonflammable resistor.
- : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- : B+ Line
- : B– Line
- : adjustment for repair.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
  ▷ : PLAY
  ▷▷ : FF
  ◁◁ : REW
  II : PAUSE
  I : NORMAL TAPE
  II : CrO_2 TAPE
  IV : METAL TAPE
- Voltages are taken with a VOM (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- Signal path.
  : PB (DECK A)
  : REC (DECK A)



Note on Schematic Diagram:

- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- Components for right channel have same values as for left channel. Reference numbers are coded from 200, 400.
- △ : internal component.
- ⚠ : nonflammable resistor.
- ⚠ : fusible resistor.

Note: The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- ⊖ : B+ Line
- ⊖ : B− Line
- ▭ : adjustment for repair.
- ⊖ Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : STOP
  ▷ : PLAY
  ▷▷ : FF
  ◁◁ : REW
  ▯▯ : PAUSE
  I : NORMAL TAPE
  II : CrO2 TAPE
  IV : METAL TAPE
- ⊖ Voltages are taken with a VOM (Input impedance 10MΩ) Voltage variations may be noted due to normal production tolerances.
- ⊖ Signal path.
  ⇒ : PB (DECK A)
  ⇒ : REC (DECK A)